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SIPs

Where they work, and how you can sell them

editor's page

BY SCOTT TAPPA

Break your tendencies

In a past life, I worked as a sports writer. During the autumn months I covered high school and college football, and invariably, when we reached the midway point of the season, coaches would regale me with stories about how their goal that week was to "break tendencies."

On one hand, "breaking tendencies," which means not running the same play on third-and-six that you have for five games, seemed to be just another one of those lame sports clichés like "stepping up" and "taking it one game at a time." On the other hand, "breaking tendencies" is a wonderful goal for living your life or running your business.

Too often we tend to get in a rut, whether it's eating the same thing for lunch every day, wearing the same pants to work every day, or watching the same old syndicated sitcoms on TV before bed each night, even though you've seen the episodes five times already. There's something to be said for placing yourself firmly in such a rut: You tend to become more dependable, consistent, and efficient.

At least that's what I tell my wife.

It is easy for builders to fall in ruts for the exact same reason. If you've been using post-frame or studwall building techniques for a long time, chances are you're very good at selling those systems, your draftsmen are good at designing them, and your crews are good at erecting them. Your building company is dependable, consistent, and efficient.

It is also in danger of being passed by emerging technologies. This is why it is so important to break your tendencies and try something new, something like this month's cover topic, structural insulated panels.

Times are changing, and customers will be changing accordingly. Traditional post-frame, metal frame, and stick-built buildings have made wonderful advances through the years, but in some areas they will never be able to measure up. SIPs and insulating concrete forms simply have better insulating properties than conventional construction. Do they cost more? Yes, in most applications. Is there a learning curve? Yes, but everyone who has used these products says it does not take long to catch on. Is a sizeable portion of building buyers going to be content buying conventional buildings not using these products? Yes.

You might not lose market share or see your profit margins dwindle if you choose not to look into an alternative technology. But remember this: energy prices are not getting any lower, and our country in general is getting more and more energy-conscious. Even if you live in an area where green building is an oddity reserved for hippie types, you can still be a hero by lowering people's energy bills.

SIPs, ICFs, and reflective metal panel coatings can lower heating and cooling bills. So can radiant, geothermal, and solar heat.

It may be wrong to label these technologies "emerging" or "alternative," since most have been around for quite some time. But because so few builders have been willing to break their tendencies, they remain industry novelties, advocated by devoted groups who make good points but are not widely heard.

So go ahead, break your tendencies. We're not suggesting you ditch everything you know or take on every product mentioned above. But try adding one to your company's portfolio every year, or every three years. Phase something in and see if your customers take to it. Don't give up if it doesn't catch on right away, innovation takes time to become mainstream.

Order fish instead of a cheeseburger. Wear khakis instead of blue jeans. Watch CNN instead of "Seinfeld." Try SIPs instead of stick building.

Break your tendencies.

Scott Tappa, editor

RURAL BUILDER

cover story

BY SCOTT TAPPA

Structural insulated panels make Minnesota house an energy STAR

Project houses don't work much better than this. Energy House III, a structure being built by the Suburban Northwest Builders Association near Minnesota's Twin Cities in Elk River, features a number of cutting-edge, energy-efficient building technologies, including geothermal and radiant heat, granule-coated metal roofing, and an integrally-insulated concrete foundation. On a gorgeous mid-October Friday, the house's structural insulated panels were being set, and the jobsite buzzed with activity.

At Energy House III, a team of three workers is able to manually lift a 4x20-plus foot structural insulated panel into place. The crew uses ratchet straps to ease the panels into a nestled position without damaging the foam or OSB. SCOTT TAPPA PHOTOS

Curt Stendel of SIPs distributor Panelworks Plus, along with Terry and Linda Dieken of Extreme Panel Technologies, which manufactured the panels, were talking with a marketing professional about his impression of SIPs. "He said, 'It's been neat learning about what you're doing, until now I had only seen SIPs on 'This Old House,'" says Stendel. "Within a minute, a guy comes walking up the street and says, 'I saw this stuff on TV and wanted to get a closer look.' These are the types of comments we're getting from people."

They are encouraging comments for those involved in advancing the use of SIPs in construction. SIPs have been around for a long time, but despite measurable growth — Structural Insulated Panel Association members averaged 20 percent growth last year — have not gained widespread use or acceptance. The main reason: aside from objections regarding price, which can be overcome by comparing competing assemblies and energy savings, SIP products have not been used on an

abundance of high-profile projects, and it is hard for builders and their customers to wrap their brains around a construction method that does not involve 2x4s and blown-in insulation. It takes a leap of faith for a builder to embrace something "new" like SIPs, and thus far, few have been willing.

That's not the case at the Energy House, built by a collection of forward-thinking contractors and installers, and located along a highly-visible stretch of highway in a growing suburb. Stendel says only a handful of Twin Cities builders work with SIPs, and most of them have worked on the Energy House, but during the course of the project several interested builders/carpenters have volunteered their services to learn more about the product. In theory, those builders will then offer SIPs to their customers, which will give SIPs more exposure, which will lead to market growth … and so on.

"When we heard the Energy House was going to be built, I volunteered to be on the committee," says Stendel. "Worst case, I figured we'd meet some people and let them see what we're doing. But getting SIPs included, there have been a lot of potential customers coming over, as well as potential builders."

This story looks at SIPs from the perspective of four key principals on the Energy House project: the distributor, Panelworks Plus; a builder, Six J's Construction; the manufacturer, Extreme Panel; and the general contractor, Northwoods Custom Homes & Remodeling.

The distributor

When asked about his friend Curt Stendel, Terry Dieken chuckles and says, "You mean 'Panelhead?'" It is a well-earned nickname: Stendel has been setting panels for 25 years. "I always was thinking a little bit different than the conventional, never quite fit a mold," Stendel says. "It appeared to me when I first saw samples of the panels that it made sense, for labor, durability, speed of construction, and the overall value of a project."

Stendel, the panel distributor on the Energy House project, got started in SIPs working as an independent builder with a

Curt Stendel of Panelworks Plus, left, has been a SIP advocate for almost a quarter-century, and played an important role in getting the product included in the Energy House. Jerry Olejar of Six J's Construction, above, has been working with SIPs for six years, and is one of a handful of SIPs installers in the Twin Cities area.

Minnesota company called Insolare, which was part of a larger concrete company. His first SIP buildings were primarily in the ag and livestock confinement markets, starting out with a dairy barn addition and a calf barn. In those days, he bought blank panels and customized them for the project at the jobsite. After several years he latched on with Energy Panel Structures, then a start-up in Albert Lea, Minn., targeting SIPs for the ag market. There was not much of a push for SIPs in residential uses at the time.

"It was a matter of selling the concept to the farmers, or to the rural building contractors," Stendel says. "It was an unknown, people weren't familiar with SIPs. Lester's had already paved the way for using SIPs in confinement applications, Art Schwictenberg did a great job marketing that."

Today SIPs' primary marketing muscle comes from the product's energy efficiency, but in ag buildings, air quality was key. "The environment inside the building was better, because it was a better insulated, tighter building, so animal health was going to be better," he says. "We looked at controlling ammonia, sealing the structure properly, and ventilating the building the way it was designed to. What we're doing now is parallel to what we were doing in livestock."

Stendel's SIPs use has evolved into primarily residential, although he still does the occasional farm shop. With larger-sized panels becoming more readily available, commercial work with SIPs should be more feasible.

There have been obstacles along the way. Building inspectors, for one, have not always been enthusiastic about working with SIPs. "The ones who have worked with them once have no problem with it, but the ones who haven't, they don't want to admit they don't know everything," he says. "Sometimes we have to provide engineering on things that are built better than stick built. (The ones who are not cooperative) really can't come up with anything concrete, they just hope you'll go away. We have to be persistent and diplomatic." Fortunately for the Energy House, the Elk River building official was a big promoter of SIPs and the building team had no troubles.

SIPs can also take a builder out of his comfort zone, especially when it comes to scheduling. Panels take time to be fabricated and properly cut to account for doors, windows, and mechanicals, which is not a

problem for a well-organized builder. "You can't order a house tomorrow and have it the day after," says Stendel. "A lot of builders don't have the patience. Fine, they're not the people we're looking for."

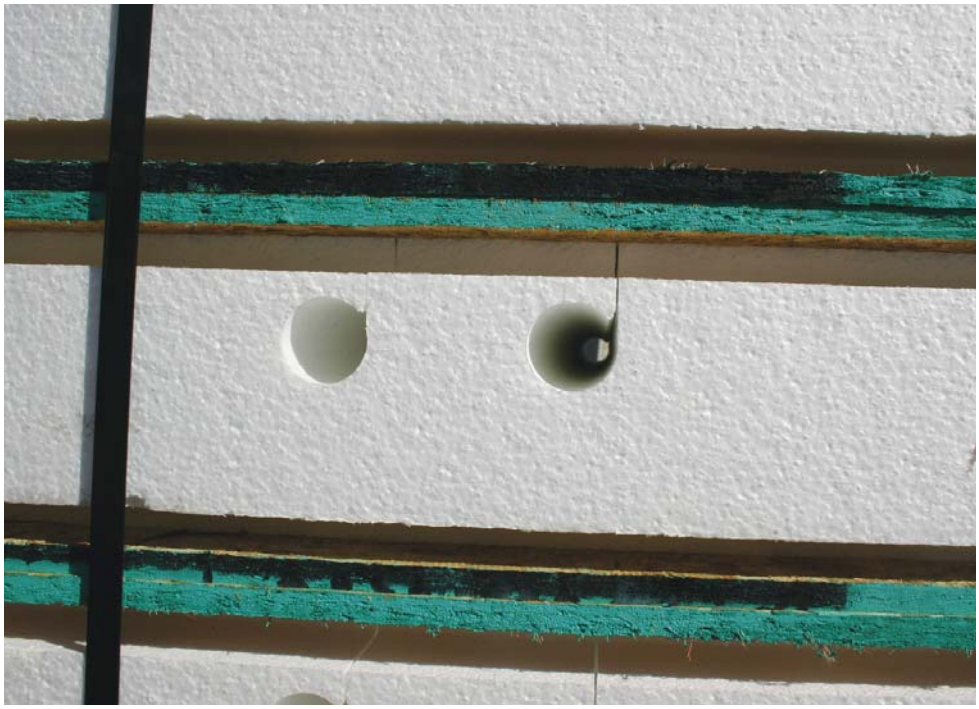
Then there's cost. Using SIPs walls can be comparable to stick-built, but panel roofs will cost 15 to 20 percent more. Stendel argues comparing the two methods is like comparing apples to oranges. "If you try to stick frame a house to the same energy conservation levels as SIPs, there's no way you can feasibly do it," he says. "When you factor in (that SIPs have) twice the insulation values, three times the wall strength for racking, when you look at the roof structure and see how much stronger that's going to be, you really can't make comparisons. You can build double 2x6 walls and insulate it twice, but it's not possible to stick frame and come up with the same quality."

SIPs are also well-positioned to take advantage of two parallel outside forces — rising energy costs and growing demand for green building/energy efficient building technologies. Any SIP builder or manufacturer can instantly spout off the astronomical difference in whole-wall R-values between their product and stick-framed walls, as well as case studies illustrating the shockingly low heating and cooling bills that come with a tight, efficiently-insulated structure.

Payback takes several years, though, which means first-time homebuyers are not top candidates for SIPs. Stendel says his typical customer is someone in their 40s or 50s, buying their second or third homes, or retirement homes. "Our customers also tend to be more independent thinkers, more right-brained, they do more research when they go to buy a house," he says. "First-time homeowners ask how many square feet they'll get for X amount of dollars. They really aren't counseled on what energy costs are like."

The builder

Jerry Olejar was thinking about energy costs when building a home nine years ago. He was looking to build a SIPs home, but could not find a contractor to build it for him. "I built the most energy efficient stick house you could at the time, but it doesn't hold a candle to SIPs," he says.



Chases for electrical or plumbing components are pre-cut into SIP panels at the factory. This requires advance planning for outlet and switch placement, but new paths can be cut at the jobsite using a hot ball bearing, knife, or similar tool.

Six years ago, Olejar had some comp time from his job in computer networking, and helped a friend build a house out of SIPs. After his job was eliminated, Olejar plunged into the world of SIPs full-steam. His friend, who had been an engineer with AFM/R-Control, convinced Olejar that he could sell SIPs if someone else took care of the installation, and the two set up an installation network. Olejar has seen the industry move in a positive direction.

"I think it's going to continue to grow," he says. "Someone did an Energy House with SIPs on the East Coast that got a lot of press, and SIPs have done well on the West Coast, but the 'No Coast' has always been slow to catch on. If a building product is doing well on the outer edges, it's bound to catch on in the middle."

Olejar's Six J's Construction is one of three SIP builders working on the Energy House, along with Panel Setters Plus and Panel System Builder. He says three different people volunteered free labor, and were given a valuable hands-on education in SIPs installation. "They were handy and had some experience — it wasn't like they had never put a nail apron on before — and they are all looking to build a SIP house and wanted hands-on experience," Olejar says. "We welcomed that."

The project also has raised awareness of SIPs among SNBA members. Olejar says that at an association meeting during construction, 25 of the 75 people in the room indicated they had driven by the project, and five had stopped and walked through. Skeptics remain — including the GC on Olejar's 9-year-old home, who refused to build with SIPs. "He was one of the guys that walked through it, which was nice to see, but his biggest hang-up is cost," Olejar says. "I said, 'Let me reiterate: For 1 percent more than you would pay for a quality insulation product like Icynene, (SIPs) go up faster, your wall cavities won't be wet, etc.' I know he does higher-end homes, so you don't think the homeowner minds paying $5,000 more on framing costs? That's nothing, and you might be able to eliminate one whole furnace."

Olejar's experience with SIPs has taught him some tricks of the trade. For instance, he contends that panels expand as an installer moves down a wall, and 99 percent

Roof panels are more difficult to install than wall panels, but help complete an air-tight building package and free up usable attic space.

SIX J'S CONSTRUCTION PHOTOS

of the time he has to trim a panel when he gets to a corner, and recess the foam back out. "It's the hardest thing to get a hold of, and you're only 1/2, 3/8 inches off," he says. "And roofs are tricky for an everyday framer." SIPs builders also use special tools like ratchet straps, which allow installers to gradually move panels into position without using blunt force that could damage the foam or OSB.

The manufacturer

Terry and Linda Dieken knew little of ratchet straps when they got into the SIP business 13 years ago. They had built a spec house and several other buildings with SIPs, and saw a good product ready for wider use. "Building with it made me a believer," he says.

At first, Extreme Panel pushed its SIPs into hog buildings, and in conjunction with the Diekens' communications business, the company also dabbled in SIP communications buildings before slowly moving into residential. "It's tighter, with a whole lot less leaks," he says. "With our 4-inch wall, we can achieve better R-values than a 2x6 R-19 wall."

Even though the numbers tilt overwhelmingly in favor of SIPs, finding converts has been tough. "It's hard to change the old contractor," he says. "People always think they're so sick of doing the same thing, but what do they do? Get up at the same time, put their socks on, and go. It's just hard to change."

Consumers may force that change. When Extreme Panel, which supplied the panels for Energy House III, exhibits at home shows, "The homebuyer is really putting his foot down and saying this is the way we want to build our next house," says Dieken. "They're forcing homebuilders to change." A shortage of skilled labor also helps make a case for SIPs, which are engineered and precut at the factory, leaving little mystery at the jobsite.

Dieken and others expect SIPs to get a big boost when SIPA finishes its prescriptive method, which will knock down many of the barriers erected by uncooperative building officials. Dieken expects the method to be complete by next year or 2007, which means SIPs will have a place in codebooks, alongside other building methods.

"Now officials look in the codebook and they don't see it," says Dieken, SIPA's second vice president. "Once it's in there,

A crane in the neck?

One drawback to building with SIPs is the need for heavy equipment to handle certain larger panels, especially in roof assemblies. Jerry Olejar of Six J's Construction in Elk River, Minn., faced the issue head on, buying a crane that he figures paid for itself in two years.

"My first year in business, I rented an all-terrain forklift and spent $9,000 in rentals," he says. "I thought, 'Gee, I could probably buy one for $20,000.' The first one we bought was $20,000, and we sold that one last year. We bought our current one out of bank repo; we had to put more money into it than we wanted, but still bought it for less than what it's valued at.

"The first one we bought, in two years it paid for itself. The weekend I sold it, I ran into the guy I sold it to, and he told me the water pump blew, which was going to cost him $3,500 to fix. Now it's just sitting around his yard."

Dennis Lee of Dixie Building Systems in Paducah, Ky., does not own a crane, but says all that is needed for SIP work is an extended boom forklift. He has national accounts with several equipment companies, and says renting is not a big expense for his commercial work, since any building larger than 30x30 will require a forklift onsite anyway.

Six J's Construction photo

they won't be afraid to say, 'OK, people have done testing and engineering, SIPs work for this particular house.' It will make it a whole lot easier for manufacturers to get into some of the cities where building code officials are not familiar with SIPs."

The general contractor

Greg Holst was not very familiar with SIPs before Northwoods Custom Homes took on the Energy House project, mainly because none of his customers had inquired about them. "My first contact (with SIPs) was with Curt, he showed us a model at a luncheon meeting, and I thought it was a cool concept," Holst says. "I was very skeptical, but if you give anybody promoting SIPs a chance to explain where their strength is, where the energy savings are, it makes sense."

Any skepticism has been erased by work on the Energy House. "I'm really impressed with the craftsmanship, just the way they're putting it together," Holst says. "You can see where it's tight, see a lot of strength there. If I had to build my own house tomorrow, I would use panels, I've fallen in love with the product from the get-go."

It's a good bet that Northwoods will be using SIPs on more homes in the future. When the company's production people visited the Energy House jobsite, Holst says they were very excited about moving the product into Northwoods' repertoire. "If somebody's going to live in their house and care about energy savings, it's a phenomenal upgrade," he says.

The builders involved in Energy House say cantilevers such as this are easier to build with SIPs than with stick framing.

The future

Where do SIPs go from here? The product commands only about 1 percent of new construction starts, which has not budged much in recent years. Still, at its conference in Louisville last winter, SIPA established as a goal raising SIPs' share of new residential starts nationwide from 1 to 5 percent by 2010, quintupling market share in five years. "That is unbelievably huge," says Stendel.

The industry is gearing up for the push. SIPA is discussing an alliance with APA—The Engineered Wood Association, whose members' OSB sales stand to rise from a boost in SIPs sales; earlier this year, Ainsworth Lumber announced plans for two new OSB mills. And the big boys are getting on board, too: Pulte Homes, one of the country's largest home builders, has begun producing its own SIPs, and is integrating the product into its line.

But any large gains will originate at a grassroots level. To illustrate the point, Stendel refers to two young members of Rick Becker's Panel Setters Plus crew. "Take a look at Travis and Nate on Rick's crew," he says. "They're 19, 20 years old, and if they stay with this, they're going to be looked at as pioneers. Stick building isn't going to be replaced by SIPs, it won't happen. But looking at the whole energy situation, we are going to be there more and more." ■